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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/885,285	12/04/2000	Harald Merkel	0091-0189P	2145
2292	7590	09/22/2005	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			STOCK JR, GORDON J	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/885,285	<b>Applicant(s)</b> MERKEL ET AL.	
	<b>Examiner</b> Gordon J. Stock	<b>Art Unit</b> 2877	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2-11, 13 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-7, 8/4-8/7, 9/4-9/7 is/are allowed.
- 6) ☒ Claim(s) 2, 3, 8/2, 8/3, 9/2, 9/3, 10, 11, 13, 15-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/4/2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Amendment received June 13, 2005 has been entered into the file.

#### *Claim Rejections - 35 USC § 112 and - 35 USC § 101*

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. **Claim 16** is rejected under 35 U.S.C. 112 second paragraph as being indefinite, for **claim 16** claims both an apparatus, a system comprising a device and a method step of evaluating the measurement data. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. *In Ex parte Lyell, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990)*. **Claim 32** is rejected as well for its dependence on **Claim 31**.

**Claim 16** is rejected under 35 U.S.C. 101 based on the theory that the claims are directed to neither a "process" nor a "machine," but rather embrace or overlap two different statutory classes of invention set forth in U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. *Id.* at 1551.

#### *Claim Rejections - 35 USC § 103*

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

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such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 2, 8/2, 9/2, 11,** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Klingenbeck et al. (4,798,209)** in view of **Svenson et al. (6,026,173)**.

As for **claim 2**, Klingenbeck in a method and apparatus for finding temperature distribution of a subject, an emitter of EM radiation in a multiple of frequencies (Fig. 1: 6; col. 3, lines 30-50); at least a sensor arranged on an opposite side to detect EM radiation from said material originating from said emitter (Fig. 1: detector arrays); an analyzer to receive information comprising phase and/or amplitude (Fig. 1: computers and memories; col. 4, lines 35-55) and calculates a selected property, temperature distribution (col. 7, lines 10-60; col. 8, lines 15-40). As for conveying means, Klingenbeck is silent. However, Examiner takes Official Notice that conveyance means are well-known in the art to convey the patient through the inspection device. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have conveyance means in order to move the subject between transmitter and detector arrays. As for an imaging device, Klingenbeck is silent; however, he states that computer tomography is used to derive three dimensional information of a tumor (col. 6, lines 20-28). Svenson in EM imaging teaches that tomography comprises microwave imaging (col. 1, lines 15-35). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made that an imaging device was used, microwave imaging system, in order to derive 3-d internal contour information of tumors, for computer tomography was used to derive tumor positional information. In addition, Klingenbeck discloses several memory devices (Fig. 1: 23, 25, 27, 45). He does not specifically state that the memory having stored information regarding three dimensional contour of the material, but Svenson in EM imaging

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teaches memory storing information regarding three dimensional contour of the material to provide spatial coordinates (col. 9, lines 45-58). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have a memory in order to provide spatial coordinates of the material being imaged.

As for **claims 8/2, 9/2, and 11** Klingenbeck in view of Svenson discloses everything as above (see **claim 2**). In addition, Klingenbeck discloses means to interpolate previously measured results, stored in a memory to obtain a property distribution; means to calculate dielectric distribution; and convert to temperature distribution (Fig. 1: memories, intermediate memory; col. 6, lines 15-25; col. 4, lines 40-55; col. 7, lines 40-65; col. 8, lines 1-40).

6. **Claims 3, 8/3, 9/3, 10, 13, 15-19**, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Klingenbeck et al. (4,798,209)** in view of **Svenson et al. (6,026,173)** further in view of **Johnson et al. (5,588,032)**.

As for **claims 15 and 18**, Klingenbeck in a method and apparatus for finding temperature distribution of a subject, an emitter of EM radiation in a multiple of frequencies (Fig. 1: 6; col. 3, lines 30-50); at least a sensor arranged on an opposite side to detect EM radiation from said material originating from said emitter (Fig. 1: detector arrays); an analyzer to receive information comprising phase and/or amplitude (Fig. 1: computers and memories; col. 4, lines 35-55) and calculates a selected property, temperature distribution (col. 7, lines 10-60; col. 8, lines 15-40); means to calculate dielectric distribution; and convert to temperature distribution (Fig. 1: memories, intermediate memory; col. 6, lines 15-25; col. 4, lines 40-55; col. 7, lines 40-65; col. 8, lines 1-40). As for conveying means, Klingenbeck is silent. However, Examiner takes Official Notice that conveyance means are well-known in the art to convey the patient

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through the inspection device. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have conveyance means in order to move the subject between transmitter and detector arrays. As for an imaging device, Klingenberg is silent; however, he states that computer tomography is used to derive three dimensional information of a tumor (col. 6, lines 20-28). Svenson in EM imaging teaches that tomography comprises microwave imaging (col. 1, lines 15-35). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made that an imaging device was used, microwave imaging system, in order to derive 3-d internal contour information of tumors, for computer tomography was used to derive tumor positional information.

As for means to calculate the dielectric distribution comprises a three dimensional model determining regions within said material where the dielectric function is assumed non-changing and means to apply said model to said three dimensional contour of the material whereby the distribution is obtained, Klingenberg in view of Svenson is silent. However, Johnson in a method of imaging electromagnetic energy teaches assuming a homogeneous model system and to apply to data to obtain three dimensional image of the system being investigated (cols. 33-34). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have a three dimensional model of material where the dielectric function is homogeneous in order to determine the three dimensional dielectric distribution of the material being investigated.

As for **claim 3**, Klingenberg in view of Svenson and Johnson discloses everything as above (see **claim 18**). In addition, Svenson states that image processing is used with at least one imaging sensor, several emitter receivers (col. 9, lines 25-30) and image processing is done with several algorithms to produce a profile of the object being imaged (col. 9, lines 35-55).

As for **claims 8/3, 9/3, 13, 16, 19** Klingenbeck in view of Svenson and Johnson discloses everything as above (see **claims 3, 15, and 18**). In addition, Klingenbeck discloses means to interpolate previously measured results, stored in a memory to obtain a property distribution; means to calculate dielectric distribution; and convert to temperature distribution (Fig. 1: memories, intermediate memory; col. 6, lines 15-25; col. 4, lines 40-55; col. 7, lines 40-65; col. 8, lines 1-40).

As for **claims 10 and 17**, Klingenbeck in view of Svenson and Johnson discloses everything as above (see **claim 9/3**). In addition, Klingenbeck discloses means to interpolate previously measured results, stored in a memory to obtain a property distribution; means to calculate dielectric distribution; and convert to temperature distribution (Fig. 1: memories, intermediate memory; col. 6, lines 15-25; col. 4, lines 40-55; col. 7, lines 40-65; col. 8, lines 1-40). As for means to calculate the dielectric distribution comprises a three dimensional model determining regions within said material where the dielectric function is assumed non-changing and means to apply said model to said three dimensional contour of the material whereby the distribution is obtained, Klingenbeck in view of Svenson is silent. However, Johnson in a method of imaging electromagnetic energy teaches assuming a homogeneous model system and to apply to data to obtain three dimensional image of the system being investigated (cols. 33-34). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have a three dimensional model of material where the dielectric function is homogeneous in order to determine the three dimensional dielectric distribution of the material being investigated.

*Allowable Subject Matter*

7. **Claims 4-7, 8/4, 8/5, 8/6, 9/4, 9/5, 9/6, and 9/7** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to **claim 4**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a device for measuring the distribution of selected properties of a material at least one imaging sensor detecting a picture of the reflectivity, in combination with the rest of the limitations of **claims 4-5, 8/4, 8/5, 9/4, 9/5**.

As to **claim 6**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a device for measuring the distribution of selected properties of a material said imaging sensor detects a picture of the reflectivity and transmissivity and propagation speed of sound waves, in combination with the rest of the limitations of **claims 6-7, 8/6, 8/7, 9/6, and 9/7**.

*Response to Arguments*

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. However, as for the argument that Klingenbeck does not comprise a memory wherein said image device is a memory having stored information regarding the three-dimensional contour of the material, he does not specifically state that imaging device comprising a memory having stored information regarding three dimensional contour of the material, but Svenson in EM imaging teaches memory storing information regarding three dimensional contour of the material to provide spatial coordinates (col. 9, lines 45-58). Therefore, it would be obvious to one skilled in the art at the time the invention was made to have a memory in order to provide spatial coordinates of the material being imaged.



As for the allowable subject matter as set forth in the previous action in regards to a model assuming a nonchanging dielectric function, Examiner apologizes for the inconvenience but upon further search a rejection of that particular limitation has been made. See above.

***Fax/Telephone Numbers***

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

- 1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and
- 2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

*Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (571) 273-8300*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

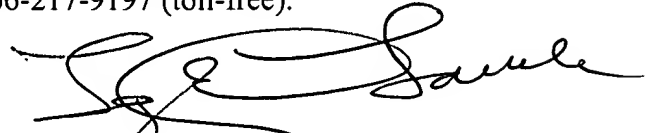
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ND

gs  
February 28, 2005



Layla Lauchman  
Primary Examiner  
Art Unit 2877